GRAZING OF HORSES AND SHEEP ON NATURAL AND SEMI-NATURAL PASTURES

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Introduction (1)

- Herbivores are important for efficient utilization of areas with natural vegetation (meadows, pastures etc).
- Natural areas have been traditionally managed with local breeds of ruminants (sheep, cattle, goats) for meat production.
- In the recent years a decrease in the number of grazing ruminants has been observed; same time the number of horses has increased.
Introduction (2)

• Each area has different soil conditions and consequently different natural vegetative cover. Site specific factors have to be taken into account before starting.

• Animal species have differences in their grazing behaviour, and their effects on vegetations are different; e.g. horses are known strongly selective grazers.
Different needs of animal categories have to be considered, as well: e.g. foals/lambs, mares/ewes, growing, lactating, size, breed; young animals and females usually show greater selectivity.

Horses have a greater intake capacity of roughages than ruminants which enables them to control competitive grasses and maintain open areas in pastures.

Some plants get less palatability for the animals during maturity.
Grazing behaviour (1)

- Both sheep and horses can eat (bite) close to the ground.
- Both animal species prefer dry areas and avoid wet places.
- Horses prefer grass and less mature plants with better nutritional quality but are able to modify their foraging behaviour to tolerate high fibre contents better than sheep (and cattle).
- Sheep prefer younger and shorter plants, but horses are grazing both taller and short vegetation.
Grazing behaviour (2)

• Horses make less use of forbs and legumes than ruminants
• Horses are able to adjust their grazing behaviour (daily grazing time, intake rate, feeding site) in order to meet their nutritional requirements
• Horses perform better on those pastures where lambs and cattle have shown growth at slow rate
Grazing behaviour (3)

- Horses avoid grazing on tall swards contaminated with faeces
  results in heterogenous pastures that might hold higher diversity of arthropid fauna
Grazing behaviour (4)

• Horse walk 12-15 km (or more) during a day when grazing
• Grazing is organized into 3-5 meals per day; two main meals (morning, evening)
• The time horses spend grazing (70% of the daylight time) is significantly higher than sheep
  DM intake per BW significantly larger
  can compensate decreased amount of available grass by increasing grazing time (up to 19 hrs/d)
• Horses produce more faeces compared to sheep and often use same places when emptying effects on fauna (insects, birds) utilizing the dung
Plant selection

- The sheep can select the forage and prefer the pastures with higher pastoral values. They may cause an excessive reduction of the presence of some species, as legumes.
- Horses may eat wood (40% can be composed of poorly digested wooden material) being able to modify their foraging, but are not as sufficient as sheep in limiting development of trees.
- Heavy grazing can lead to faster depletion of the most palatable and nutritious plants and plant parts reducing intake and performance.
Stocking rate/Overgrazing (1)

• Grazing at moderate stocking rate generally increases the heterogenity of grasslands and thus promotes biodiversity

• High stocking rate:
  - damage due to trampling
  - dominance of grazing tolerant plants
  - elimination of trampling-sensitive plants
  - effects on fauna (insects, birds, mammals)
Stocking rate/Overgrazing (2)

- Low stocking rate:
  - species richness is reduced due to competition for light
Mixed grazing (1)

• Different animal species are grazed together
• Horses + sheep may lead to improved grassland management both from ecological and economic points of view
• Herbivorous species have complementary feeding behaviours and prefer different plants, which tends to reduce competition and provides a wider use of available biomass – horses can tolerate high fibre diets
Mixed grazing (2)

• Lambs have been observed to have better growth when grazing together with horses and cattle than alone

• Sheep benefit more from mixed grazing than horses:
  ➢ have separate resting areas
  ➢ shared habitat when grazing
  ➢ better utilization of rough grass in mixed grazing
  ➢ horses have a limited effect on the behaviour of sheep
Mixed grazing (3)

- Effect on the number of plant species: horses + 86%, cattle +15%, sheep 0%, mixed grazing +14%
Rotational grazing (1)

- Has been applied long in cattle and sheep
- Certain time period (e.g. 21 to 28 days) of the rest of pasture between rotations
- The benefits are similar regardless of the livestock species:
  - increased pasture quality
  - increased carrying capacity
  - decreased need of supplemental feeding
  - decreased erosion
Rotational grazing (2)

- Change the rotation year to year affects the diversity, helps parasite control
- Timing! grass growth, plant maturing (palatability, nutritional value), sward height, trampling sensitivity
- Avoid overgrazing! damages the vegetation, slow re-growth, winter damages
Rotational grazing (3)

• Time of the rest of the pasture part depends on the growth:
  ➢ spring ➞ shorter time
  ➢ autumn/dry summer period ➞ longer time
  ➢ Plant species (different capacity of re-growth)
• Rotation may reduce the pressure to certain plant species in sheep
• Availability of drinking water often a limiting factor
Supplemental feeding

• Nutritional quality (digestibility, protein) is changing during the growth season being highest in spring and early summer effects on performance

• General poor performances mean that animals can be kept ob such grazing consitions only for few months

  supplemental feeding (if allowed)
  indoor feeding/management
• In Iceland, heavier lambs are usually slaughtered directly from natural ranger but the poorer lambs are weaned and put to improved (fertilized, seeded) pastures
Health

• Regular health and welfare control during the grazing season
• Parasites – regular worming necessary (treating programmes), mixed grazing, rotation changing the animal species yearly
• Sensitivity to insect bites (mainly *Culicoides* species)
• Toxic plants, e.g. honeysuckle, buttercup, marsh horsetail
• Nutrient efficient: some mineral contents may be lower in natural grasses than in cultivated areas, e.g. P, Cu, Na, K
• Too low of high body condition score (BCS); to avoid low BCS esp. at mating and parturition; sedentary/young horses risk of too high BCS
• Some horse breeds tend to accumulate fat during summer (Islandic, Estonian, Fjord)
Fencing

• Safety materials, condition
• Proper height: sheep 75 cm, horse 120-140 cm
Take-home message(1)

• Sustainable sheep and horse grazing is an efficient way of utilizing the resources of natural vegetation
• Semi-natural or improved natural pastures are economically better to the performance than natural pastures
• Utilization should be based on scientific knowledge and sustainability
Take-home message(2)

• Mixed grazing is beneficial for both the animals and vegetation; sheep benefit more than horses

• Grazing has many benefits for horses:
  ✓ lot of exercise
  ✓ living in a group; socialization
  ✓ feed available continuously ➔ gut health
  ✓ low feeding cost
  ✓ easier management
Take-home message (3)

• In some cases horses may compete for the same preferred plants (both prefer good quality vegetation)

• Improving the natural pastures or supplemental feeding may be necessary when the quality and amount of the grass is declining

• As hindgut fermenters horses digest less effectively fibrous material compared to ruminants
Thank you

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